Notebook, N-05-12-04.1

This notebook contains dated entries from September and December of an unidentified year, probably 1905. All entries are by Edison and relate to the technical development of his storage battery. Included is a log of battery trials noting different compositions of cobalt and nickel flake and experimental methods for loading the flake into the cell pockets. Inserted into the book are several loose pages pertaining to the battery tests, and a one-page note on battery patents. The pages are unnumbered. Approximately 30 pages have been used.

	400			450			
10	392	350	338	367			
12	573	632	636	635	515	522	566	571
13	356	400	396	397			
14	195	200	199	195			
15	192	205	206	208			
16	270	302	320	333			

Nitrates & Chlorides in KOH are bad, in with 1/2 amp in 21% Dec 4th - ~~of~~ dropped down Dec 16th Chloride dropped on 14th Dec - Sheets were good + about 7/10th of 1/10000 thick about 100 mlg of Nitrate K+ Chl K in the H2 Tumblers, arsenic K writ Dec 16 also -

	319	320	321	322	327 Hot			377				
2	586		600	726	646	725	721	725	658	686	700	725
3	646	732	700	739	680	697	730	740	682	700	717	742
4	730	730	740	775	600	698	703	717	625	655	668	660
5	27	20	20	25	37	37	40	42	Co			
6	622	622	648	668	525	610	605	620	548	567	587	592
7	180	228	220	240	221	230	242	227	225	230	242	242
8	555	592	531	670	515	583	592	615	505	550	566	572
9	367	365	306	397	275	330	330	330	241	262	277	269
	554				554	554				Stoke		
10	645	702	730	753	Nitr.	587	658	687	696	423	500	
11	243	277	250	250	Co							
12	787	825	838	850		820	832	832	836	660	732	
13	457	502	505	553		442	482	450	486	375	425	
14	550	618	651	675		567	606	625	635	352	375	
15	237	246	250	262		227	244	250	246	195	220	
16	420	452	476	486		372	405	417	426	295	345	

	381	382	427			477	527				
2	700	712	561	647	683	572	382	420	426	447	
3	710	720	620	620	722	652	534	572	590	600	
4	652	658	530	623	648	632	525	580	587	587	
6	572	582	470	537	579	549	452	499	498	510	
7	231	234	165	219	222	220	178	200	202	202	
8	557	572	402	447	520	482	375	425	415	426	
9	272	280	211	247	249	245	210	220	219	215	

A perfect
B Little open
C completely open
D Barely opened

for seam opening Sept 26

Mol. Stiff
Mol
Very stiff Mol
"
"
"
"
"
Caramel
" Thin
Thin 1/2 portion Caramel
Caramel Thicker
Rolled wrin
" KOH,

20 Temp. Much thicker Caramel
30 "
75 "
100 "
Punched removed plunger
Thin 50 on 120 Stiff Caramel

Stop

	9	50	100	150	200	250	300	350	400
A 25X	794	776	827	767	753	733	596	530	450
A 26 X	740	777	812	768	781	796	785	758	706
B 27	699	767	712	700	621	582	440	415	
A 28	735	767	793	770	803	757	710	665	602
29	836	745	622	492	461	377			
B 30	932	937	894	877	890	853	617	507	
B 31	875	903	875	881	900	752	655	522	
B 32	920	867	903	838	907	887	640	530	416
B 33	838		853	840	853	838	706	67	506
A 34	715	800	777	782	800	770	715	618	422
A 35	745	791	785	772	867	795	796	722	650
A 36	731	696	600	582					
B 37	787	750	665	600	547	Co			
A 38	796	506	306	28					
A 39	587	750	672	67					
A 40	780	657	654	618					
C 41	809	860	815	816	812	798	650	572	435
A 42	819	735	575	492					
43									
44									
A 45	710	782	717	792	770	750	665	572	447
46	850	776	590						
A 47	808	776	590	496					
48									
49									

	2K	50	100	150	200	
A 50	492	550	497	460		
A 51	519	500	404	283		"
A 52	590	592	406	330		
A 53	600	687	620	611		A
A 54	717	787	725	740		
A 55	750	842	760	792	817	
A 56	750	287	225	345		
A 57	832	855	717	608	530	CO
A 58	783	695	570	446		
A 59	795	862	843	832		
A 60	796	794	787	830		
A 61	798	445	471	330		
A 62	797	461	500	CO		
A 63	857	870	862	907		
64	833	890	~~662~~	Cut out		
A 65	834	904	590	915		
A 66	805	832	825	805		
B 67	777	532	610	445		
A 68	818	445	477	CO		
A 69	763	812	810	845		
A 70	762	810	797	795		
A 71	745	657	715	680		
72	650	745		Cut out		
A 73	500	217	167	CO		
A 74	662	400	287	CO		

1130 Staff Command

1500 "

1800 "

2000 "

Staff Command 50 Troops,

"

"

Have 50 rifle pieces in = Thus setting day Staff Command,

Nickerson Staff Command

		50	100	150	200	
Three 80 all from the stuff Commercial. A 75	836	640	510	Co		
A 76	836	830	842	830	573	
B 77	830	767	707	640	500	
A 78	825	835	765	765	672	Co
A 79	782	717	543	Co		
80	500	800	675	698	Co	
Thin glucose A 81	799	765	660	Co		
A 82	798	665	527	Co		
A 83	772	822	820	842	777	
2nd strong glucose A 84	799	702	590	Co	Co	
A 85	815	918	880	911	660	
86	812	650	550	550	Co	
2nd strong glucose A 87	824	747	575	582	Co	
A 88	772	635	525	Co		
B 89	840	867	857	875	815	
Gum Dextrin A 90	877	642	532	Co		
91	882	662	476	Co	Co	
A 92	861	541	487	Co		
Rosin soap A 93	934	917	887	777	662	Co
A 94	902	710	533	Co		
B 95	919	709	536	Co		
Rosin soap with 2nd wash A 96	848	840	785	682	545	Co
A 97	845	778	621	Co		
A 98	850	770	627	Co		

			50	100	150	200	
Thursday Room Soap	B 99	962	510	460	Co		
	B 100	917	531	400	Co		
	A 101	886	605	462	Co		
Room Soap Wed 2 days	A 102	905	662	575	Co		
	A 103	910	625	493	Co		
	A 104	907	760	650	Co		
Open neck line 200 Quite thin Room Soap Wed 2 days	A 105	892	592	500	Co		
	A 106	895	628	565	Co		
	A 107	907	753	733	675	641	Co
Thicker Room Soap Wed 2 days	A 108	870	856	885	915	765	
	B 109	877	778	696	602	550	Co
	A 110	865	843	850	760	671	Co
Powdered K Sulfate	A 111	497	408	385	Co		
	A 112	525	400	353	"		
	A 113	512	470	463	"		
Wed 2 days Nickel plate Shift Resin	A 114	773	595	402	"		
	A 115	801	700	632	"		
	A 116	800	553	352	"		
Mohawk not sticky	A 117	923	903	768	652	492	Co
	B 118	892	626	478	Co		
	B 119	930	617	495	"		
glycerine	B 120	877	618	535	"		
	A 121	857	643	650	"		
	A 122	832	542	480	"		

		7th	50	100	150	200	
very stiff medium	C 123	855	745	x	Co		
	B 124	877	691	611	"		
	C 125	878	687	597	"		
very stiff med	A 126	732	657	662	"		
	A 127	766	581	517	"		
	C 128	767	655	645	"		
very stiff med.	C 129	912	745	596	"		
	C 130	885	811	777	722	612	Co
	C 131	906	782	707	670	525	Co
very stiff med. black bitty coefficients	B 132	835	575	492	Co		
	A 133	785	627	537	"		
	A 134	835	617	510	"		
very stiff spheroid	B 135	900	937	865	900	775	Co
	B 136	906	747	588	Co		
	A 137	902	697	550	"		
	138	x					
	139	x					
spheroid stiff Balls	A 140	941	872	843	868	813	
	A 141	927	910	880	950	917	
	A 142	897	662	573	Co		
medium stiff spheroid no balls	A 143	997	790	665	Co		
	A 144	941	797	725	700	592	Co
	A 145	953	785	750	692	633	Co
	146	927	592		Cut	Out	
black flecks, stiff medium 1/2 in Co 1/2 in spheroid	B 147	880	820	863	847	652	Co
	A 148	872	640	450	Co		

		50	100	150	200		
very stiff mat. no balls	D 149	898	840	815	760	747	
	C 150	862	715	613	Co		
	C 151	876	840	726	690	550	Co
stiff mat.	A 152	881	817	812	807	710	
	A 153	878	735	581	Co		
	A 154	870	927	845	960	857	
Stiff mat.	C 155	840	737	637	Co	Cut Out	
	D 156	907	762	690	"	"	
	C 157	857	662	555	"	"	
Stiff mat. ½ flocks stuck ½ mixed	B 158	847	785	732	750	667	Co
	A 159	911	765	720	645	553	Co
	A 160	885	865	867	953	937	
3 gram flocks — Stiff mat. no balls 10 mesh mat. of	161	863	700	592	Cut Out		
	162	866	477	521		"	
	D 163	825	647	671		"	
4 gram flocks	A 164	828	557	498		"	
	A 165	863	661	568		"	
	C 166	835	605	421		"	
5 gram flocks	C 167	830	685	595		"	
	B 168	881	757	702	700	652	Co
	B 169	847	710	595	Cut Out		
7 gram flocks	A 170	832	713	580		"	
	B 171	858	628	667		"	
	C 172	895	670	505		"	

6 grms Co Mufflers 2 grms Mu flerlet

glucose, fluffy Mechie flerlet = 3 grms

Improvement of Mi flerlet = 4 grms

still longer grounding Mu flerlet, 5 grms

still longer grounding Mu flerlet 6 grms

Mu flerlet 7 grms

		50	100	150	200	
B173	832	800	776	800	747	
B174	825	747	547	Cut Out		
C175	827	612	620	"		
D176	87	665	300	"		
C177	777	725	646	"		
D178	759	761	790	755	517	Co
D179	792	773	816	842	620	Co
B188	745	637	492	Cut Out		
C181	775	681	568	"		
C182	750	715	665	"		
B183	735	662	548	"		
C184	747	625	517	"		
C185	705	726	723	708	512	Co
C186	737	681	601	Cut Out		
B187	725	720	692	"		
C188	735	790	825	908	920	
A189	697	747	750	812	630	Co
B190	715	740	655	Cut Co		Co
B191	766	778	750	782	657	Co
C192	762	710	564	Cut		
B193	780	800	860	892	915	
194						
195						
196						
197						

100 Tamps Nickel flake

50 " "

50 Tamps 3 lbs Nickel flake

50 Tamps 4 lbs Nickel flake

		50	100	
A 198	1008	932	793	
C 199	968	753	543	Co
B 200	982	920	786	
A 201	710	605	585	Co
A 202	665	685	579	Co
A 203	662	490	460	Co
B 204	695	550	480	Co
A 205	676	687	650	Co
A 206	645	617	557	Co
D 207	1012	752	783	
D 208	962	586	562	Co
D 209	877	682	560	Co
D 210	1005	945	912	
C 211	987	920	910	
D 212	990	925	915	
D 213	1077	1020	585	
C 214	1051	617	316	
D 215	1067	781	316	
D 216	827	800	765	
D 217	807	665	540	
C 218	786	777	575	
C 219	803	780	872	
D 220	806	445	325	
D 221	763	732	832	

		50	100	150	
222					
223					
224					
B 225	727	747	790		
A 226	717	737	793		
C 227	717	700	725		
D 228	735	760	795		
D 229	724	762	765		
B 230	703	760	786		
D 231	762	665	740		
B 232	65	642	652		
B 233	592	720	782		
A 234	790	840	852		
B 235	744	815	837		
B 236	763	855	880		
237	761				
238	722				
239	736				
B 240	780	752	630	570	
D 241	770	811	860	820	
D 242	780	672	575		
D 243	820	768	697	512	
D 244	812	837	886	850	
D 245	792	630	537		

Cold ~~bestowing~~

Taking those starting in 600 Columns ending Sero
~~[illegible]~~ 14 A 3 B showing very little thickening
to overall of low Capacity tubes —

3yl. — pieces matrix 4.48 gram

Double Shell cover — Pale Black Milky glass Sero glass

Double Shell Cover — Milk — Sero glass

" Same " Sero glass Milk Thick

Double T — Cloudy Cover — Non Green Milky poor Clear glass — Sero Glass

" " Sero Glass

		50	100		
D246	867	891	936	882	
D247	802	718	558	310	
C248	797	825	813	707	
D249	972	750	592	242	
D250	972	971	1015	967	
251	997	736	696		
252	920	853	673		
253	808	712	547		
254	903	907	880		
255	945	886	737		
256	932	661	Co		
D257	936	806	677		
D258	892	502	Co		
D259	890	727	Co		
260	900	905	920		
261	772	750	608		
262	853	800	700		
263	860	725	591		
264	892	857	865		
265	921	937	988		
266	901	895	841		
267	879	885	816		
268	902	508	Co		
269	897	900	912		

from McCo flake Burns inside.

McCo poor flake burns outside

Co — Needle good flake Burns outside

Co — Needle good flake Burns inside

Cooke poor flake Burns outside Must dried on hot plate.
Was well made tube.

" ~~Needle good flake~~ Burns inside. * was not dried before

269½	941	50				
270						
271						
272	982					
273	917					
274	941					
275	760	848				
276	752	771				
277	745	660				
278	942	982				
279	917	958				
280	953	976				
281	932	912				
282	925	972				
283	907	750				
284	622	660				
285	618	728				
286	623	722				
287	938	946				
288	971	972				
289	937	917				
290						
291						
292						
293						
294						
295						

50

296					
297					
298					
299	925	721			
300	883	891			
301	905	892			
302					
303					
304					
305	753				
306	725				
307	757				
308	752	770			
309	770	847			
310	770	845			
311	798	892			
312	793	785			
313	795	890			
314	803	907			
315	800	787			
316	797	655			
317	796	677			
318	762	842			
319	777	817			

		50 or more left
320	751	
321	750	
322	742	
323	827	923
324	835	857
325	825	942
326	X	
327	863	922
328	785	633
329	920	927
330	883	941
331	882	656
332	968	955
333	970	917
334	995	958
335	961	906
336	937	900
337	945	767
338	891	915
339	893	917
340	908	925
341	965	735
342	927	865
343	951	932

Cause why one of a group of 3, go 6a) on hot test –

1st All binder not eliminated, or decomposed inside during elimination + stays on contacts

2nd Swelling at seams while apparently the same may in one case cause surface of tube to leave the mix over considerable area, whereas in other cases it does not leave.

3 Heat with green + closes pores too much There may be something in this because when cells come off hot test they always run 15 to 25% better on 3rd run – possibly due to embrittlement + increased circulation This is just the opposite on cold test

4 Inside mix gets full of some reducing agent + MnO_2 can't form –

5 on heat mix expands but running cold contracts – more in one tube than another owing to different deformation of the tube,

6th Holes being packed rather tight gets plugged with muck.

7 Iron dissolves also Hg more in one cell than another due to Si organic matter etc.

8 - Something in KOH causes flake to be attached more in one cell than other

9 According to how mix expands, flake pulls apart.

10 Flake gets amalgamated + Eaten by Hg dissolving in the KOH.

11 Chlorides Nitrates etc attack flake

12 Dehydration of mix by heat + conc KOH,

13 - Cells on test one gets 10 or 15 higher temp than others -

14 Some cells not soaked as long in KOH before first charge as others

15 Low water allowed on some cells dries + gets mounted with silica made insoluble thereafter -

24 1st (tubes good)
11 2nd "
15 3rd "

16 = Segregation of green in mfg tubes

17 - Unequal distribution of mix on sides of tube in loading makes seam pull out different,

18 Sticks in mix - balls up more balls in last parts mix by segregation.

19 - flake attached, black oxide formed on flake which is non conductor, something in KOH originally or from something dissolved out of iron increasing oxidation, or Nitrates, chlorides etc.

20 - Possibly the forming or 1st charging (cold) has something to do with it notice the cold group used for leaking which afterwards burnt on hot so all 3 are good —

21 - perhaps every tube is not set right under tamping tools so some get a heavier tamp -

22 Notice in a group one will have 400 mfg more or less active material than the other mfg —

[ITEM FOUND IN BOOK]

Dyes –
in Tube pilot
Speak about not drying mix
but use moist to permit flo
& no seg'n Elé
+ Claim a viscous Lubricant to
flake + get more in –

[ITEM FOUND IN BOOK]

1. Not due to ousthing of pocket
2. " Packing
3. " Stake
4. " Smoking out binder
5. " To original way of mixing or quality or quantity of binder

1st Due to difference in plating the tube
2. " in the twin hole operations
3. " Smothing with OH causing excessive swelling or Hg Pockets
4. " Uniquent heating on stabling
5. " Soft ends allowing tube to expand when cement flow
6. " Smothing in rubber brought out by heat
7. " Circulation within tube
8. " Much deposited or chem change at mouth of burn on wire
9. " Drawing out greasy washing agent tends with on
10. " Not having soft end so wire does expand
11. " Bad Brand
12. " Loose plug or Dripping of Carefully

[ITEM FOUND IN BOOK]

A First. 50 lb. Caramel stiff –
A First + Third – stiff Caramel rather Dry
A First " wt 2 ½ lbs 53 T
A First " 2 lbs –
A Second thin Caramel – No 2 8000 –
A Third thin glucose 8000
A Second thin "
A First + Third Thick Room Temp. sticky no balls –
B First glucose stiff Balls – Covers ok
A First + Second " " Hot Energy brake – Covers OK
B Second glucose Covers – ~~stiff~~ not sticky – Mix of Coll + Muffle
D First Very stiff Mol no balls thin 20 on 200 – Covers Mol
152 AA First + 3rd Mol stiff metallicky Covers OK –
160 A – Big flake 10 m
179 D glucose very sticky pliy too sticky fine balls –

[ITEM FOUND IN BOOK]

(Very bad ones all bad) —

72 — Ni flake —

90 Quin Dublin

99 Thin Rosin — green all from 80 all fumes in

102 — " " green Tint, Dry air

111 R Sulphate (Mg SO4) 600 m thick rosin 80 all fumes in

114 Mechel flake Stiff Rosin — poor coloured (broken flake — up — zigzag)

120 Glycerine —

123 Thin 40 on 200, stiff mech-flake very black thin — Coarse OK

126 Mechel flake — stiff Mch large of green thin 40 on 200.

132 30 on 200 — black Mch-flake Very stiff mch Coarse coll.

155 30 on 200 Thin Mch big flake Mch, perfect (reserve)

161 " " 8800 g 500 stiff mch 3000 flake No Coarse perfect 3.96 green

4000 " " 3.82 "

164 " " " 7000 " " 3.61 "

170 " " " 500 stiff mch 5000 very fluffy Mechelf — bally 3.59

182 " " " 500 stiff mch 5000 very fluffy Mechelf — bally 3.59

[ITEM FOUND IN BOOK]

1st Cause of low cap on 1st runs — Glucose not washed out,
2 " Swelling weak joints.
3 " Losing cap 1st flake too thin — 2nd too much flake with swell closes pressly —
3rd swell under certain conditions breaks contact with packet, 4th gradually
changes in the Carbon left in by Glucose working it more porous or Gas an
insulator — 4th Drift breaks, 5th something in Trans that affects
surface of flake, 6th Something in ROH, that affects surface of flake,
7 No place to expand — 8 Expansion breaks flake, 9th Bad plating on Trans
10th Degregation of mix — 11th not well soaked in 2.1.1 same time 60 for
going on charge — 12th different Temp that they are run at
13 Water allowed get low in going 14 Tells not put on proper
line when get low & get neversed 15 —

[ITEM FOUND IN BOOK]

all bad

72 thru 80 fair well — 4000 Nickel f. 4000 Ni 3 Cornell 50 T
90 " " 6000 Cu f. 6000 quite [illegible] green not Cor well — 50 T.
99 " " " 6000 thin Rhem Scrap up all green free
102 " " " 6000 thin Rhem Scrap [illegible] very so any — green tint, pinholes not Cor
" " " green tint, pinholes only thick Tc flake 50 T. are dried
109 all thru 200 — " " 6000 Nickel f. 6000 Rhem scrap green tint. Covering fair 50 T
111 thru 50 all fine — " 6000 Nickel flake 6000 Rhem scrap — green pin Cor 50 T [illegible]) are dried
114 " " " 6000 Nickel 6000 glycerine green
120 " " 6000 Nickel 6000 very stiff wet. Cor perfect. flake very dark red.
123 thru 40 on 200 6000 " 6000 very stiff wet. Cor perfect. flake very dark red.
" " " Tinge green - covers fine — but flake poly thicker than Nic -
126 — " 6000 Nickel f. " " " Tinge green - covers fine — but flake poly thicker than Nic -
132 thru 30 on 200 6000 Nickel 4000 thy stiff wet. cor fairly well —
155 " 6000 Nickel flake Cu f. 4000 thy stiff wet. cor fairly well —
161 " 3000 " 10 " 5000 " Covers perfect - thick dark flakes well in tubes
164 " 4000 " " " " " " " "
167 " 5000 " " " " " " " "
170 — " 7000 " " " " " " " "
182 " 5000 Nickel f. 5000 glue Cover ok — Cole
201 " 6000 " " " " flake broke up 100 T
204 " 6000 " " " " " " " " 50 T
207 " 6000 Ni Cu flake dirty 6000 Cu Ni f. Cor perfect. juicy —
213 " 6000. " flake 5000 glue Rim on 330% —

33 bad tubes Cor perfect
24 " " Covering not perfect green

[ITEM FOUND IN BOOK]

3 good all glucose
4

2 good
caramel glucose mol
1 ||||| ||

8

1 good 1 fair — caramel Rosin mol glu
1 1 1 1
4

1 good Caramel glucose mol KOH
|||| ||||| || |
14

1 pretty good Rosin mol glucose
|| |||| 12 15 3 21 3 1 ///

90 — ~~63~~ glucose
~~21~~ Caramel
~~39~~ mol.
~~18~~ Rosin
~~6~~ KOH
~~9~~ glycerine
~~3~~ Dextrin

All Good Mol glucose Caramel Rosin Amalac Dextrin glycerine
|||| |||| 1 ||||| 1 1
|||| 3 3
~~24~~ 12 3 15 KOH
1
3

[ITEM FOUND IN BOOK]

[ON BACK OF PRECEDING PAGE]

1 good

60
66
75
78
81
84
87
135
146
173
179
240
243
249

1 good 1 fair

69
108
158
216

3 good

210
225
228
234

two good

63
140
152
188
191
219
231
246

all bad

72
90
99
102
105
111
114
120
123
126
132
153
161
164
167
170
182
201
204
207
213

1 partly good

93
96
117
129
143
149
176
185
198

[ITEM FOUND IN BOOK]

3 good –

210 – Thos Jo on 200 Good McCoy stiffly Fine glossy, no bubbles, So Double T Cover
221 – Good McCoffish stiffly Fine glossy Dark no bubbles, Fine (for wide) no cracks yet crack yet So T
228 Thos Jo on 200 Good stiffish bubbles McCo Fine glossy Fine (for wide) no cracks yet crack yet So T
234 Thos Jo on 200 Good McCo stiff Fine glossy Fine (for wide) no cracks yet crack

2 good

63 Thos Jo stiff Good McCoffish Very dry So T
140 Thos Jo on 200 Good McCo bubbly flecks black Fine gloss, bubbles Cov ok So T
152 Thos Jo on 200 Good stiff not Good McCo Thos Jo 15 mark - not stiffly stiff Cover perfect
188 Thos Jo on 200 Fine flecks McCoff So T Fine gloss bubbles Small black Cover ok
191 " Good bubbly Mcoff Thos Jo 15 Fine stiff Mcoff not stiffly - dry bubbles no bubbles perfect Cov
219 Thos Jo on 200 Good bubbly McCoff Fine gloss Stiffly flecks cracks flecks cracks yet So T Cover
231 " Good bubbly black McCoffish Fine gloss no bubbles Very cracks yellow cracks yellow cracks yellow So T
248 Good McCo flecks very bubbles black stiffly Cov perfect Fine gloss 100 T stiff not

1 good 1 fair –

69 Thos Jo stiff Good McCoffish Thos Jo Good 3 Comment So T 2 Cov not
108 " " Good Co McCoffish Thos Jo Good Thos Jo Fine gloss Cov not Cov not Comment T
158 Thos Jo on 200 Good stiff not Good McCo not Cracks Yellow Thos Jo bubbles
216 " Good McCoff Fine bubbles Fine gloss So T

1 good

60 Thos Jo not Good McCo flecks McCo 20 m. Cov ok stiffly Good Comment
66 " " Good Comment So T 25 cc
75 " " Good Comment So T
78 " Good McCo. Thos Jo 200 mark Not Cracks - Grade No 2 Comment
81 " Good McCoff Good Fine gloss, pockets not Cracks yet, bubbles
84 " " Good " " stiffly not Stiffly
87 " " Good " " not Comment
135 Thos Jo on 200 Good Fine gloss very stiff, bubbles Cov ok So T Good McCoff
146 " Good Fine not Good McCoffish, bubbles Not Cracks Fine stiff not So T Cov ok
173 Thos Jo on 200 Good McCoffish not stiff not Good Not Cracks Cov perfect
179 " Good gloss Fine flecks McCoffish not Good Cov perfect
240 " Good gloss McCo flecks flecks over Cov ok 100 T bubbles - Cov ok So Double T
243 " Good gloss Good McCo
249 " Good 25% Kott. Cov perfect 100 T 4 Wrapper

1 partly good

93 Thos Jo stiff Good McCoff Good Fine Cov ok So T
96 " " " " direction mark not perfect Cover
117 Thos Jo on 200 Good McCoff Good Cracks not, not well cover not stiff not stiffly
129 [redacted] Fine very stiff not Cov perfect very stiffly
143 Thos Jo on 200 Good McCoff black Fine gloss Thos Jo not cov well
149 Thos Jo on 200 Good very stiff not Good McCo Fine bubbles Cov perfect not perfect stiffly
176 Thos Jo on 200 Good Fine McCoff bubbly Thos Jo Fine gloss Small black very Cov perfect
185 " " Good " " " " "
198 " " Good McCoff small bubbly Fine stiff not 100 T

[ITEM FOUND IN BOOK]

Effect of Binder —

	all good	2 good	1 good 1 fair	1 good	1 pretty good	all bad
63 Glucose	12	~~15~~	3	21	9	12
21 Caramel		3	3	12	0	3
39 Mol		6	3	6	12	24
18 Rosin		0	3	0	6	15
6 KOH			~~3~~	3	0	3
3 Glycerine						3
3 Nitrin						3

100 % of all good
62 % of 2 good
25 % of 1 " fair
50 % of 1 good
30 % of 1 pretty good
19 % of all bad